

INSTALLATION INSTRUCTION

INSTALLATION INSTRUCTIONS FOR 547866 / 547883 / 547875 / 547884 ECONOMIZERS USED WITH R4GM 090-120 UNITS

609A-0298

I—SHIPPING AND PACKING LIST

Package 1 of 1 contains:

- 1—Economizer Assembly
- 1—Fresh Air Hood w/ Filter
- 1—Control Package
- 1—Barometric Relief Hood
- 1—Filter Access Panel
- 2—Wire Nut (For Mixed Air Sensor)
- 6—#10 x ½ x 16 Hex Tec

Check contents for shipping damage. Contact the last carrier immediately if any shipping damage is found.

II—APPLICATION

Economizers are used with R4GM units for automatic sensor-controlled introduction of outdoor air into the system through an electro-mechanically controlled damper.

Economizer slides into horizontal return air opening. Mixed air sensor, TB11, and enthalpy control board relay are shipped in economizer and must be relocated to filter section. Intake and exhaust hoods are packaged with economizers and installed according to instructions provided.

III—INSTALLATION

1—Disconnect all power to unit.

2—Cut and discard wire tie securing wire bundle to the damper motor

Important—DO NOT cut other wires. Inspect for damaged connections or loose wires.

3—Remove box of controls to be installed over the assembly containing the logic control board and mixed air sensor. See Figure 1.

4—Remove from box the logic control board and wire bundle in place. Cut wire tie securing the bundle of wires to logic control board and mixed air sensor.

5—Connect economizer jack S2 to economizer plug P2.

6—Route wiring to the right side of the economizer and slide into the unit. Position the mixed air sensor and control board in the filter section routing wiring along right side of the horizontal return air section. Insert economizer side flanges into the unit standing seams. Using existing screws from bottom of discarded panel to secure economizer bottom flange to unit. See Figure 2.

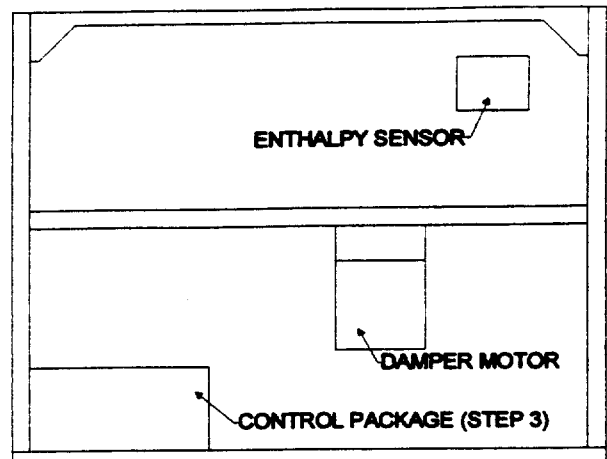


FIGURE 1

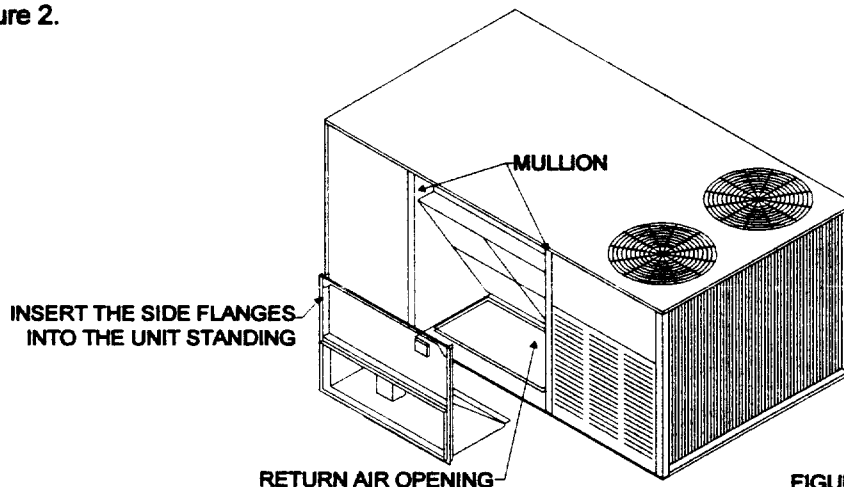


FIGURE 2

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- 7—Position logic control board in filter access area as shown in Figure 3. Secure control board with two #10—16 x 1/2 screws with two #10—16 x 1/2 screws.
- 8—Insert mixed air sensor tube through the mounting hole into the supply air compartment. Secure using two #10—16 x 1/2 screws. See Figure 3.
- 9—Disconnect unit jumper plug from unit jack S1. Discard unit jumper plug. Connect economizer plug P1 to unit jack S1.

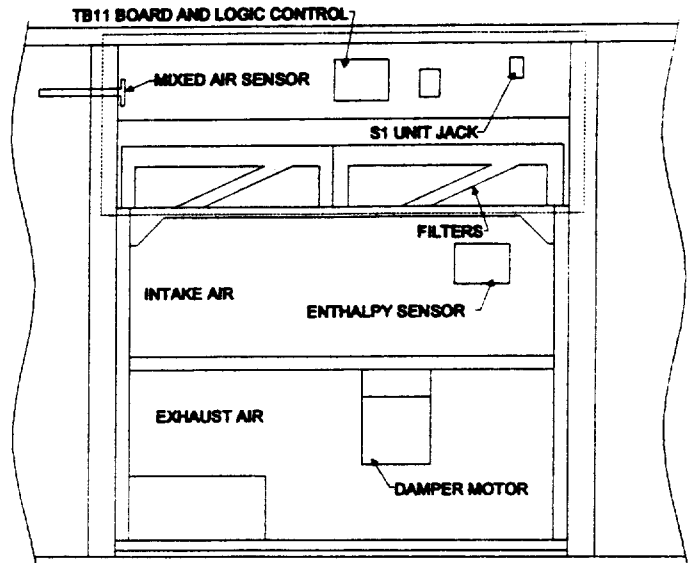


FIGURE 3

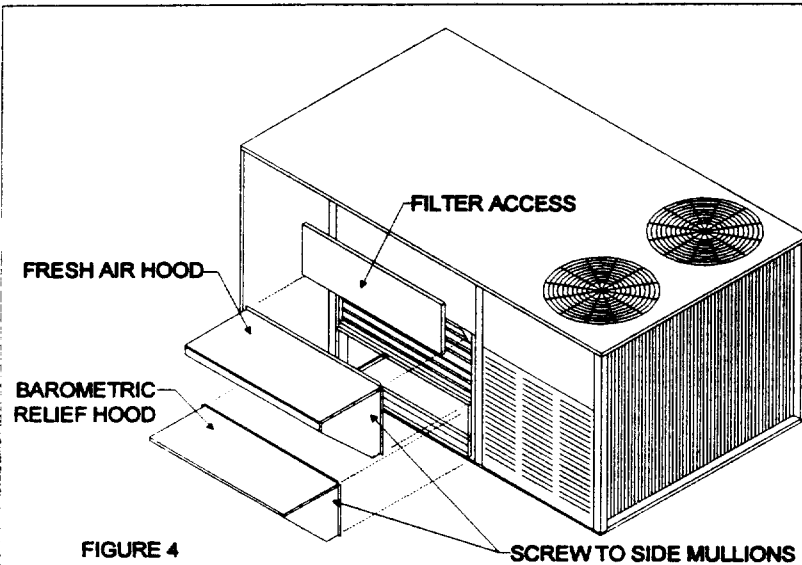


FIGURE 4

DOWN FLOW APPLICATION

- 10—Install barometric relief hood in front of exhaust air opening.
- 11—Install fresh air hood in front of intake opening.
- 12—Slide filter access panel underneath top of unit and secure to mullions.
- 13—Restore power to unit and check for proper damper operation (See System Check section).

NOTE: FOR THIS APPLICATION THE 547872 OR 547881 KITS ARE REQUIRED.

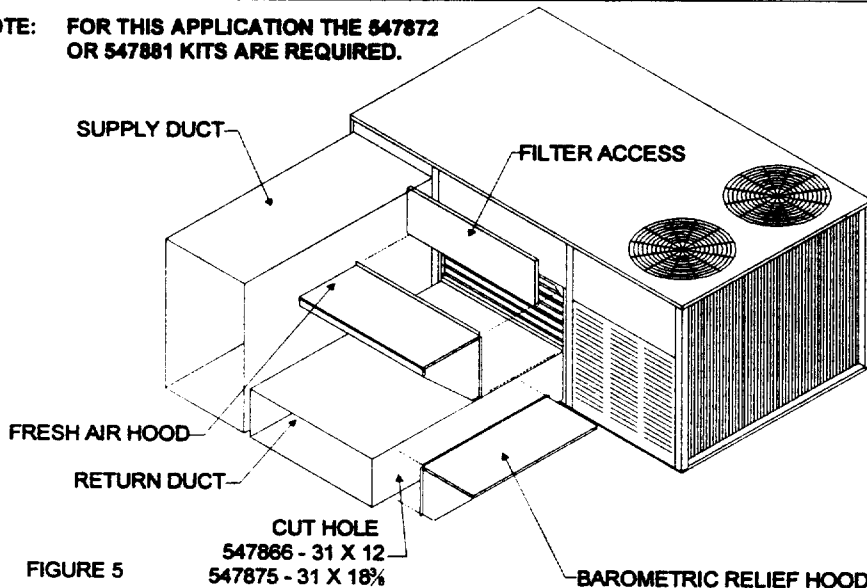


FIGURE 5

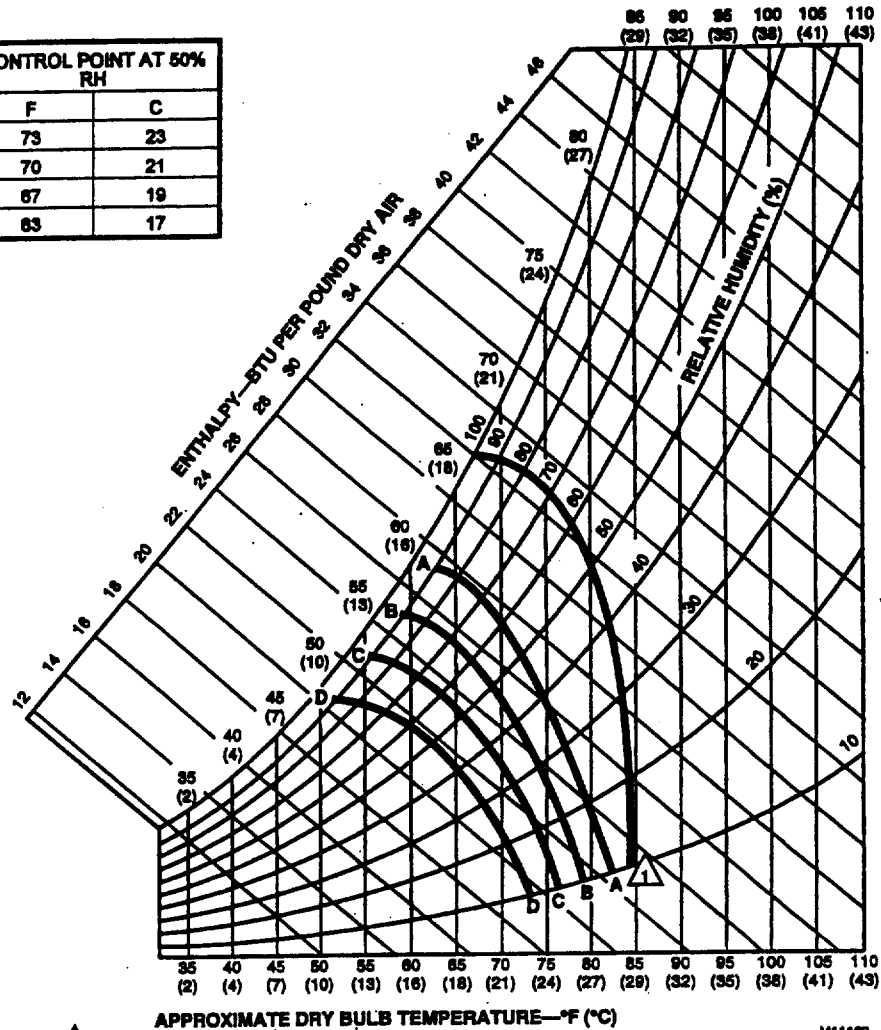
HORIZONTAL APPLICATION

- 10—Install barometric relief hood to return duct over the opening in duct.
- 11—Install fresh air hood in front of intake opening.
- 12—Slide filter access panel underneath top of unit and secure to mullions.
- 13—Restore power to unit and check for proper damper operation (See System Check section).

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CHART CURVE	CONTROL POINT AT 50% RH	
	F	C
A	73	23
B	70	21
C	67	19
D	63	17



IV—OPERATION

A—Cooling Mode

- 1—On a call for cooling, with ambient temperature and humidity above enthalpy control setpoint, damper will open to minimum vent position.
- 2—On a call for cooling, with ambient temperature and humidity suitable for cooling, enthalpy control will shift stage one control to outside air and shift stage two thermostat to first stage compressor. Damper will modulate to control supply air temperature at 55° F (13° C). If additional cooling is required, compressor one may be energized through second stage of thermostat.

B—Heating Mode

- 1—On a call for heat damper will open to the minimum vent position.

C—Enthalpy Control

The enthalpy control senses both temperature and humidity or the heat content of the outside air. It controls the amount of outdoor air brought into the system. When the heat content of the outside air is below control setpoint, the control modulates outdoor dampers to meet cooling needs of the building. When the heat content rises above control setpoint, the control closes outdoor dampers to minimum position. The recommended setpoint is "A". If Economizer is allowing air which is too warm or too humid to enter the system, control may be changed to a lower setpoint (B, C, or D). Refer to Figure 6.

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V—SYSTEM CHECK

- 1—Disconnect main power to unit.
- 2—Install jumper on auxiliary contacts of blower contactor in main unit control box.
- 3—Turn thermostat control to "OFF" position.
- 4—Install jumper on damper motor terminals T and T1. See Figure 7.
- 5—Restore power to unit. Damper should drive to fully opened position (requires 1½ minutes for full travel). Observe travel for proper damper operation.
- 6—Disconnect power to unit. Damper should spring return to closed position.
- 7—Remove T and T1 jumper on damper motor, then restore power to unit. Adjust minimum vent position on potentiometer on damper motor. See Figure 8.
- 8—Disconnect power to unit and remove jumper on auxiliary contacts of blower contactor in main unit control box. Restore power to unit.

VI—MAINTENANCE

- 1—Damper motor is prelubricated and does not require further lubrication.
- 2—Make visual inspection of dampers and linkage assemblies during routine maintenance.
- 3—Filters should be checked periodically and cleaned when necessary.
- 4—The washable filters supplied with the economizer can be cleaned with water and a mild detergent.
- 5—Take note of "Air Flow Direction" marking on filter frame when reinstalling.
- 6—If filter must be replaced, filter of like kind and size must be used. DO NOT replace permanent filters with throwaway type filters.

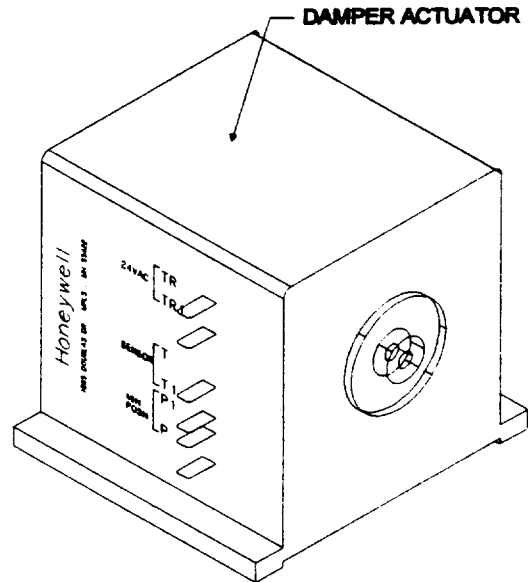


FIGURE 7

ENTHALPY CONTROL SETPOINT ADJUSTMENT

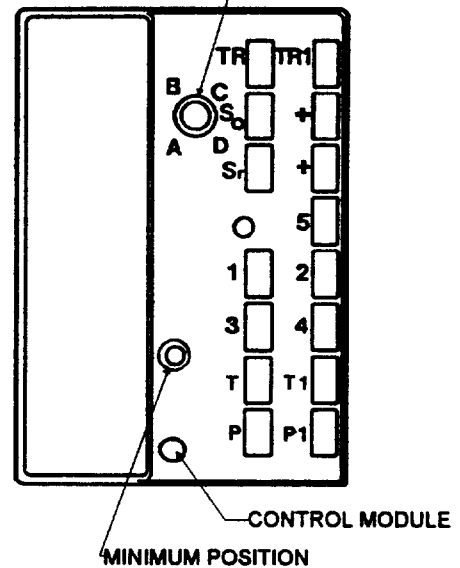
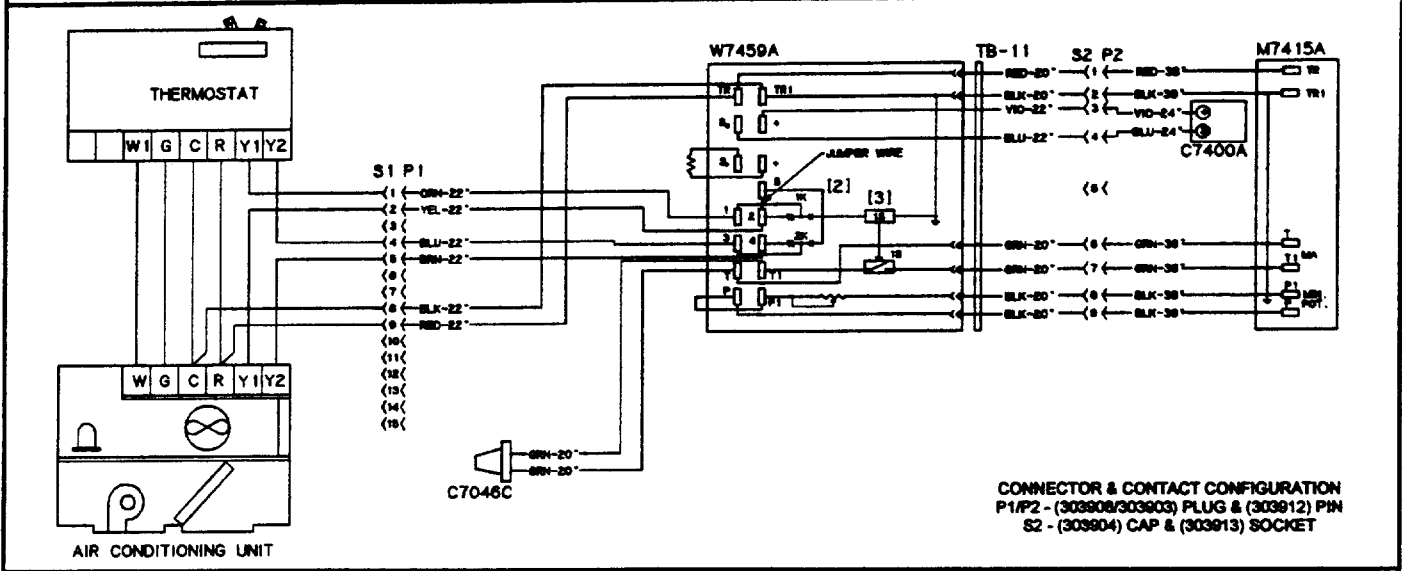


FIGURE 8

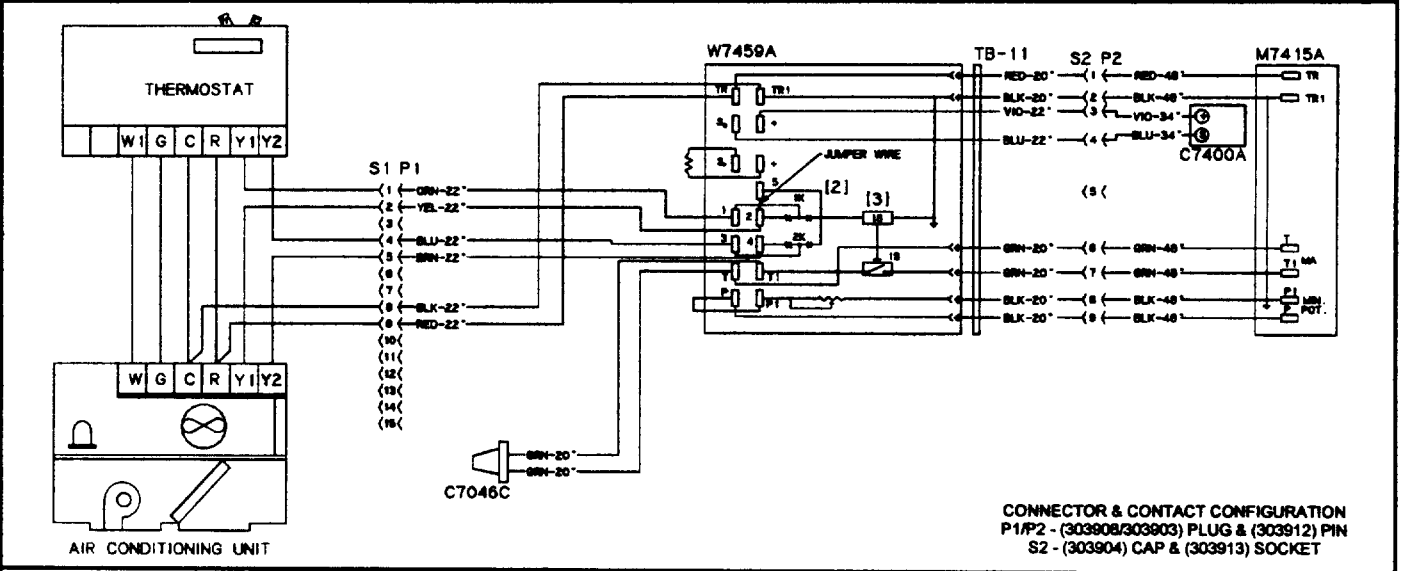
HARNES DETAIL		COMPONENT CODE		WIRE COLOR CODE	
E# = WIRE END DESIGNATION		Economizer		BLK Black	BLU Blue
E2 STUD #6 18 Ga. Wire		C7046C	Mixed Air Sensor	BRN Brown	GRN Green
E3 Female 1/2 Quick Disc.		C7400A	Fresh Air Sensor	ORN Orange	RED Red
E4 Male 1/2 Quick Disc. Insl		M7415A	Damper Actuator 24V	VIO Violet	YEL Yellow
E6 Wire Nut Size 73B		P1/S1	Plug/Cap Economizer		
	HARNES ENDS AT (P1) ECONOMIZER PLUG	P2/S2	Plug/Cap Economizer		
		TB-11	Terminal Board		
		W7459A	Logic Module		



Notes:
1. Unit wiring shown as reference only. Check unit wiring for actual unit wiring.

Modulating Economizer R4GM 090	
Rooftop Systems, Inc. 2405 McIver Lane Carrollton, Texas 75006 Phone (972) 247-7447 Fax (972) 243-0940	Date: August 26, 1998 Drawn by: Unit # 547886 Diagram# 31407W

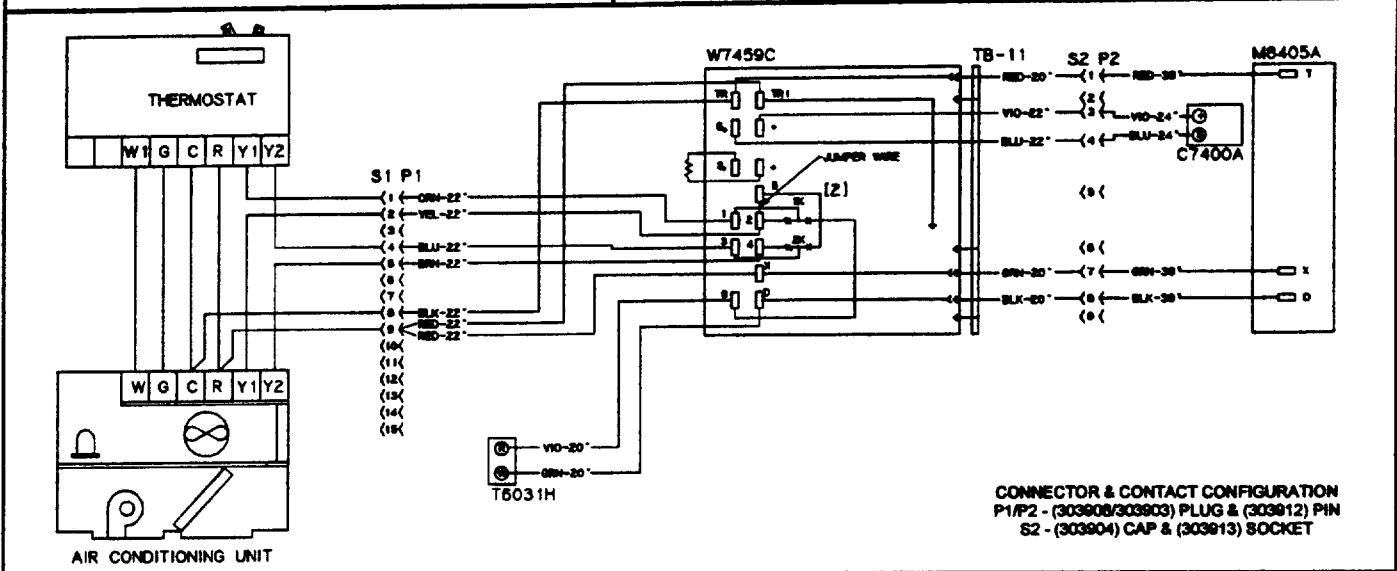
HARNES DETAIL		COMPONENT CODE		WIRE COLOR CODE	
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E2 STUD #6 18 Ga. Wire		C7046C	Mixed Air Sensor	BRN Brown	GRN Green
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E4 Male 1/2 Quick Disc. Insl		M7415A	Damper Actuator 24V	VIO Violet	YEL Yellow
E6 Wire Nut Size 73B		P1/S1	Plug/Cap Economizer		
	HARNES ENDS AT (P1) ECONOMIZER PLUG	P2/S2	Plug/Cap Economizer		
		TB-11	Terminal Board		
		W7459A	Logic Module		



Notes:
1. Unit wiring shown as reference only. Check unit wiring for actual unit wiring.

Modulating Economizer R4GM 120	
Rooftop Systems, Inc. 2405 McIver Lane Carrollton, Texas 75006 Phone (972) 247-7447 Fax (972) 243-0940	Date: August 26, 1998 Drawn by: Unit # 547875 Diagram# 31408W

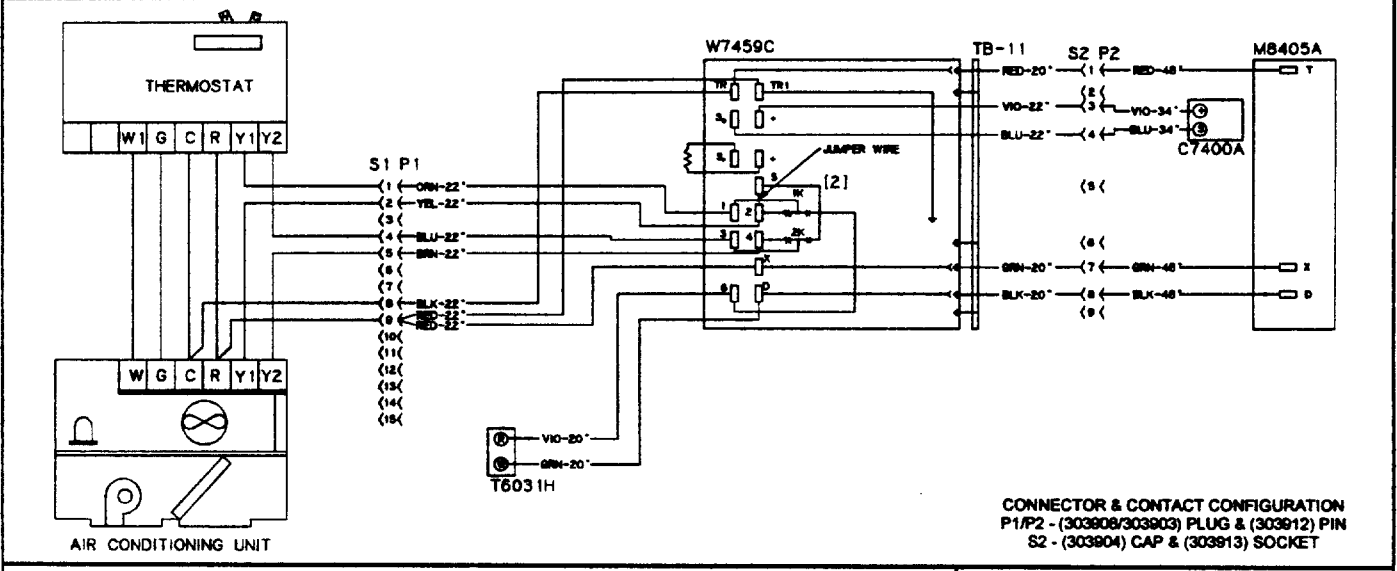
HARNES DETAIL		COMPONENT CODE		WIRE COLOR CODE	
E# = WIRE END DESIGNATION		Economizer		BLK Black	BLU Blue
E2 STUD #6 18 Ga. Wire		T8031H	Mixed Air Sensor	BRN Brown	GRN Green
E3 Female 1/2 Quick Disc.		C7400A	Fresh Air Sensor	ORN Orange	RED Red
E4 Male 1/2 Quick Disc. Insul	HARNES ENDS AT (P1) ECONOMIZER PLUG	M8405A	Damper Actuator 24V	VIO Violet	YEL Yellow
E6 Wire Nut Size 73B		P1/S1	Plug/Cap Economizer		
		P2/S2	Plug/Cap Economizer		
		TB-11	Terminal Board		
		W7459C	Logic Module		



CONNECTOR & CONTACT CONFIGURATION
P1/P2 - (303908/303903) PLUG & (303912) PIN
S2 - (303904) CAP & (303913) SOCKET

Notes:		Modulating Economizer R4GM 090	
1. Unit wiring shown as reference only. Check unit wiring for actual unit wiring.		Rooftop Systems, Inc. 2405 McIver Lane Carrollton, Texas 75006 Phone (972) 247-7447 Fax (972) 243-0940	
		Date: May 27, 1999	
		Drawn by:	
		Unit # 547883	
		Diagram# 31507W	

HARNES DETAIL		COMPONENT CODE		WIRE COLOR CODE	
E# = WIRE END DESIGNATION		Economizer		BLK Black	BLU Blue
E2 STUD #6 18 Ga. Wire		T8031H	Mixed Air Sensor	BRN Brown	GRN Green
E3 Female 1/2 Quick Disc.		C7400A	Fresh Air Sensor	ORN Orange	RED Red
E4 Male 1/2 Quick Disc. Insul	HARNES ENDS AT (P1) ECONOMIZER PLUG	M8405A	Damper Actuator 24V	VIO Violet	YEL Yellow
E6 Wire Nut Size 73B		P1/S1	Plug/Cap Economizer		
		P2/S2	Plug/Cap Economizer		
		TB-11	Terminal Board		
		W7459C	Logic Module		



CONNECTOR & CONTACT CONFIGURATION
P1/P2 - (303908/303903) PLUG & (303912) PIN
S2 - (303904) CAP & (303913) SOCKET

Notes:		Modulating Economizer R4GM 120	
1. Unit wiring shown as reference only. Check unit wiring for actual unit wiring.		Rooftop Systems, Inc. 2405 McIver Lane Carrollton, Texas 75006 Phone (972) 247-7447 Fax (972) 243-0940	
		Date: May 27, 1999	
		Drawn by:	
		Unit # 547884	
		Diagram# 31508W	